

Acknowledgments

Nearly seventy years and many thousands of pages of analysis after Hiroshima and Nagasaki, it is probably not possible to say anything genuinely novel about nuclear weapons. I do not really suppose that I have done so in this study. It may be possible to make older ideas familiar again, to accentuate their underappreciated features, and in doing so cast new light upon the politics of nuclear weapons. My hope is that I have accomplished something like this here, but readers must make their own judgment. In any case, it surely would have been impossible for me to say anything at all about nuclear weapons without the unflagging support of my friends and mentors. The many errors that remain, however, are mine alone.

Pride of place belongs to Austin Long, whose name, by rights, ought to appear alongside mine on the cover of this book. Not only did he husband me through graduate school, but he picked me up off the slag heap of the academic job market and repurposed me for better tasks. Austin suggested that we should begin writing a piece about nuclear strategy, based on a number of previous conversations. “At minimum,” he pointed out, “it will give you something else to talk about on the job market.” It did indeed, and much else besides. That collaboration resulted in three papers, two research grants, an unreasonable amount of attention for our ideas, and some modest accolades. Suffice it to say, Austin’s influence has suffused throughout this project from its beginning to its end. My gratitude to him is without measure. My esteem for him cannot be captured with words.

A second source of the ideas in this book is Owen Coté, Jr. I can say, without any exaggeration, that Owen taught me everything I know about nuclear weapons. The conversations that launched my collaboration with Austin were actually multi-person affairs, chaired by Owen, and held in numerous Cambridge haunts after hours. In these dens of iniquity, I imbibed many of the heresies about the nuclear balance that appear in these pages, as well as other potent potables. Much later, during my Stanton year at MIT, I benefited from a series of long and detailed conversations with Owen about the substance

of this book, many of which we even conducted sober. He was also kind enough to read Chapter 2 and provide numerous suggestions. It has, if not quite his *imprimatur*, then at least a *nihil obstat*. I am deeply indebted to him for his wisdom, and for many thousand dollars' worth of whisky and steak when I was a poor graduate student, but most of all for his friendship.

My intellectual hero is, without a doubt, Marc Trachtenberg. I frequently "joke" that much of my career has consisted of polishing up his brilliant insights and presenting them as my own. I was therefore thrilled that Marc gave Austin and me numerous comments on our essays as soon as we began to present them publicly. His contribution to this particular project has been immense. I sent him the penultimate version of the manuscript, when the front end was still a dense thicket of gibberish, figuring that at least I would get some good comments on the historical chapters. Within forty-eight hours, I had in my e-mail an eight-page, single-spaced memo, containing exactly one paragraph on the historical chapters, and a fully formed battle plan for fixing the most difficult problems in the book. In short order Marc hosted me at UCLA for a daylong face-to-face discussion of the manuscript, where he also dispensed much other good advice on life, research, and academia. Marc is a rare figure indeed: his titanic scholarly contributions are actually exceeded by his personal generosity and dedicated mentorship. I can only gesture at the scale of my obligations to him. He is one of the discipline's great spirits.

Of course, actually producing this study required, first and foremost, not going barking mad during the research and writing process. It would be difficult to overstate the role played by Caitlin Talmadge in ensuring that happy outcome. Caitlin has been a fast friend since graduate school. In addition to being a tremendous scholar of military affairs, she is also a keen student of my psyche. Caitlin took great care to monitor my well-being from more than 500 miles away, even as she juggled a growing family, changed jobs, and produced fantastic research. On the days when I was bleakly contemplating my future in manual labor, she was always there with encouragement and friendship. After watching me briefly flounder as I tried to organize a book conference, she simply seized the reins and implemented all logistical matters flawlessly. It goes without saying that Caitlin gave me very considerable intellectual assistance as well. She could have hardly done otherwise, having read more versions of the manuscript than anyone, usually at inconvenient times for her. Evidence of Caitlin's keen attention can be found throughout these pages, and across my personality. I am profoundly devoted to her.

At a key point in the manuscript's production, I sent out a call for suicide volunteers to read an early draft. The intellectual desolation of this version was oddly juxtaposed against the teeming jungle of its clotted prose, and it took a hardy soul indeed to machete through it. The following heroes stepped up: Paul Avey, Stacie Goddard, Galen Jackson, Jon Lindsay, Austin Long, Paul MacDonald, Joshua Shiffrinson, and Caitlin Talmadge. They each provided incredibly helpful suggestions whose acuity was especially welcome at this

formative stage. Nobly volunteering to read later drafts, which I then failed to send, were Mark Bell, Jasen Castillo, Christopher Clary, and Vipin Narang. Despite my incompetence, I have been fortunate to benefit from conversations with all of them.

Crucial advice was provided by the participants at a book workshop held on one of the middle, and middling, drafts of the manuscript. Charlie Glaser generously provided space at George Washington University and served as a terrific discussant on one of the chapters. Frank Gavin, Robert Jervis, Todd Sechser, and James Wilson also provided extremely incisive comments as chapter discussants. Completing this murderers' row of nuclear scholars were Keir Lieber, Tim McDonnell, Daryl Press, Josh Rovner, Elizabeth Saunders, and Caitlin Talmadge. Kendrick Kuo took notes on the sessions and transcribed my recordings. The level of discussion was incredible and its effect on the manuscript was transformational. The long outline I distilled from Kendrick's notes and transcripts was a constant companion as I reorganized and rewrote the study.

Others gave pivotal support to the project in ways less direct but no less important. I am very grateful to the Stanton Foundation for making me a Nuclear Security Fellow in 2015–2016, and to Barry Posen for hosting me at MIT. Many of the early ideas for this book were worked out during this period, with the help of my Stanton cohort Galen Jackson and Rohan Mukherjee.

Frank Gavin was also generous with his time and intellect during my Stanton year, and has more generally provided me with a never-ending string of opportunities to present my work, network with other scholars, and learn from the best and brightest in the field. I am grateful in equal measure for his enormous largess and his intellectual stimulation on all matters nuclear.

The Carnegie Corporation of New York lavishly funded some of the early work that went into this project. Their generous support sent me on several trips with Keir Lieber and Daryl Press, who were working on related issues in nuclear strategy; these trips were a crucible for knowledge formation, and also a massive amount of fun. I am beholden to both of them for their mentoring and friendship.

The University of Cincinnati has proven a wonderful home to teach and do research. It is basically the only political science department I have ever heard of that is not in some way dysfunctional. This is at least partially due to the exemplary leadership of Richard Harknett as department chair. He and the senior faculty went out of their way to remove administrative and service burdens from me, and allow me to take opportunities that have made this book possible. My graduate student, Jelena Vičić, provided excellent research assistance. My friend Andrew Lewis and his lovely family were a major source of cheer and comfort during the writing of this book. I am very appreciative of all of my Cincinnati colleagues.

How can I possibly express my love and gratitude for my family? They are my rock, my shield, the foundation of everything that I am. John and Lynn Green are the best parents a boy could have, and a continual font of inspiration and consolation. My sister Darcy Lutz and her amazing family are a treasure to me. This book is dedicated to them.

In the end, it is hard for me to know what to make of this book, other than that it is far too long. I suppose I am confident only that it reflects my many flaws and failings, and also whatever usefulness I may possess. A man can hope for little better in this life. And so, pending the return of the Lord – with hair like snow, eyes a flame of fire, feet like burnished bronze, and a voice like the roar of many waters – to complete the redemption of the world, me, and even this book, I take my leave of it. It remains to readers to make of it what they will.

*B. R. G. Cincinnati,
Ohio Second Sunday of Easter
Anno Domini, 2019*

America: elements of the right regarded it as little better than surrender to communist power, while elements of the left saw it as little less than the key to preventing world destruction. The reality did not match the hype. The talks periodically produced new agreements, but with little apparent effect on the ongoing competition.

These puzzling outcomes deserve attention. American military behavior during the second half of the Cold War was wildly more competitive than MAD expects across every element of its nuclear force posture. In its *acquisition policy*, America invested heavily in nuclear systems intended to provide military advantages that MAD supposes to be impossible. For instance, Washington sought hard-target counterforce capabilities suitable for destroying large parts of the Soviet nuclear arsenal. Periodically, it also made efforts to acquire missile and civil defenses aimed at protecting the American population from nuclear attack. Counterforce and population defense are the only routes for a state to limit damage to its society in an all-out nuclear war. But MAD argues that, in a world of nuclear stalemate, this is a quixotic goal. So why did Washington apparently pursue it, with remarkable consistency over two decades?

Moreover, American policymakers also pursued a competitive *employment policy*, crafting nuclear doctrine aimed at fighting a protracted nuclear war. They sought to maintain centralized command, control, and communications (C³) for protracted nuclear operations, as well as intelligence, surveillance, and reconnaissance (ISR) assets that would allow them to monitor and plan follow-up strikes in real time. These nuclear strikes were to be integrated with conventional operations to maximize their battlefield results; policymakers also called for the enemy's nuclear forces and C³ apparatus to be targeted, in order to make the adversary less effective at its own battlefield strikes. In sum, the United States increasingly planned for a long nuclear-conventional war fought according to traditional military standards for victory. To MAD, such an objective is deeply misguided, since the battlefield results cannot eliminate the adversary's ability to cause intolerable destruction. Yet Washington acted otherwise.

Last, from the nuclear revolution's point of view, American *arms control policy* during this period is also peculiar. According to MAD, American policymakers may not have had much incentive to pursue arms control, as its financial benefits can be obtained through unilateral restraint. But any arms control accords they did aim at should have been easy to obtain, and if desired, far-reaching in scope and character. Achieving military stability through negotiations should be a cinch: American leaders had nothing to lose and large financial gains in prospect from avoiding wasteful nuclear spending. Yet, with the possible exception of the Anti-Ballistic Missile (ABM) treaty, a decade of intense SALT negotiations achieved little more than force caps at very high numbers. What is more, the effort and political prominence of SALT seems belied by the fierce nuclear competition

occurring simultaneously. MAD has no explanation for why Cold War arms control became the *Seinfeld* of great power politics: a wildly popular show about nothing.

To be fair, the failure of MAD to explain American nuclear force posture during the Cold War did not escape the notice of the theory's advocates, for whom the theory's logic was first and foremost a means of critiquing, rather than explaining, American nuclear policy. When they sought to address the issue, theorists of MAD relied upon a number of hypotheses to explain the anomaly, which might be loosely grouped together under the rubric of "domestic politics." In essence, they held that military organizations and hawkish political factions have often been able to wrest control of American nuclear policy. These domestic forces from below override the national interest in a stable nuclear force posture – which is perceived by executive branch leaders cognizant of MAD – in favor of competitive policies that serve their own parochial interests in organizational autonomy, material wealth, or ideological gain. These domestic political hypotheses all had an ancient and honorable pedigree in explaining other national security phenomena, but were often applied in a post hoc way. Moreover, they were seldom rigorously laid out or fully investigated.

A great deal turns on how the anomaly of America's late Cold War nuclear policy is to be explained. The stabilizing logic of the nuclear revolution now permeates a wide swath of international relations scholarship, across a number of different questions and research programs. If the logic of the nuclear revolution turns out to require revision, the implications of that fact could ripple throughout a number of literatures and scholarly communities.

For instance, Nuno Monteiro's important theory of unipolarity makes MAD an anchor concept, using the possession of secure second-strike nuclear forces to distinguish between different types of states and to explain the durability and stability of a hegemonic power distribution.¹ The whole idea of the offense-defense balance stems from the example of secure nuclear arsenals, held to be the ultimate defensive weapon.² Nuclear weapons play an important role in Andrew Kydd's formal models of the security dilemma, helping to explain variation in trust, mistrust, and cooperation between states during the Cold War.³

¹ "Major powers already have, in a nuclear world, guaranteed survival for the foreseeable future." Moreover, "The nuclear revolution is a condition of possibility of a durable unipolar world," without which "a unipolar world would quickly disappear." Nuno P. Monteiro, *Theory of Unipolar Politics* (New York: Cambridge University Press, 2014), 101, 50.

² "Nuclear weapons created a revolution for defensive advantage." Charles L. Glaser, *Rational Theory of International Politics: The Logic of Competition and Cooperation* (Princeton, NJ: Princeton University Press, 2010), 258.

³ "When each side has many nuclear weapons that can survive a first strike ... even states with substantial revisionist goals will effectively be security seekers." Andrew H. Kydd,

The nuclear revolution also does heavy lifting in areas beyond structural theories of the international system. Stephen Brooks and William Wohlforth use its logic to demonstrate the importance of prestige as a motor force for competitive behavior among states, even amid the dangers of nuclear escalation and despite the assured security of nuclear plenty.⁴ Dale Copeland invokes the nuclear revolution to frame the importance of research on economic interdependence as a source of conflict.⁵ MAD also looms large in John Ikenberry's theory of international institutions, eliminating classic security threats and locking in the extant institutional order.⁶

Finally, the nuclear revolution is often invoked by competing interpretations of the past and prescriptions for future policy. The debate over the end of the Cold War continues to rage, but realist⁷, liberal⁸, and second-image reversed⁹ arguments all agree that MAD's transformational logic was fundamental to the Soviet Union's shift in foreign policy. Some interpreters of the disasters of 1914

Trust and Mistrust in International Relations (Princeton, NJ: Princeton University Press, 2007), 33–34.

⁴ "With the acquisition of secure second-strike capabilities by the 1960s ... the nuclear argument for insecurity could be turned on its head into a powerful argument for ultimate security." Stephen G. Brooks and William C. Wohlforth, *World Out of Balance: International Relations and the Challenge of American Primacy* (Princeton, NJ: Princeton University Press, 2008), 54.

⁵ "In the nuclear age, competition over resources and markets offers one of the few ways rational great powers might be drawn into militarized struggles that could escalate to war." Dale C. Copeland, "Rationalist Theories of International Politics and the Problem of the Future," *Security Studies* 20, no. 3 (July 1, 2011): 447.

⁶ "The presence of nuclear weapons ... alters the logic of balance." States with "a nuclear deterrent ... do not need to worry about war and domination by the leading state ... Deterrence replaces alliance counterbalancing." Furthermore, nuclear weapons mean that "The status quo international order led by the United States is rendered less easily replaced. War-driven change is removed as a historical process." G. John Ikenberry, *Liberal Leviathan: The Origins, Crisis, and Transformation of the American World Order* (Princeton, NJ: Princeton University Press, 2011), 130.

⁷ In addition to material factors like the globalization of production and Soviet economic decline, "Nuclear weapons are also clearly important" for the change in Soviet grand strategy, as they "provide[d] a margin of safety that made adopting retrenchment at this time easier for many [in Moscow] to swallow." Stephen G. Brooks and William C. Wohlforth, "Power, Globalization, and the End of the Cold War: Reevaluating a Landmark Case for Ideas," *International Security* 25, no. 3 (2000): 13, n. 22.

⁸ "Nuclear weapons ... played a powerful pushing and pulling role in the Soviet Union's external environment. Nuclear weapons posed a largely new set of constraints and opportunities with far-reaching implications for the perennial search for security." Daniel Deudney and G. John Ikenberry, "Pushing and Pulling: The Western System, Nuclear Weapons and Soviet Change," *International Politics* 48, no. 4–5 (September 2011): 500.

⁹ "A relatively peaceful nuclearized environment fostered liberalization and decentralization within the Soviet Union and the Soviet bloc." Kenneth A. Oye, "Explaining the End of the Cold War: Morphological and Behavioral Adaptations to the Nuclear Peace?," in *International Relations Theory and the End of the Cold War*, ed. Richard Ned Lebow and Thomas Risse-Kappen (New York: Columbia University Press, 1995), 59.

are quick to caution that the existence of nuclear weapons must narrow our search for lessons.¹⁰ Likewise, advocates of restraint¹¹, selective engagement¹², and primacy¹³ propose very different grand strategies, but rest their arguments on a common premise: MAD radically changes our expectations for future international politics and the threats and opportunities it will present to the United States.

Similarly, it matters a great deal for the future of world politics and American public policy what kind of logic produced the extraordinary nuclear competition in the second half of the Cold War. If MAD plus its domestic adjunct theory explain these developments, then we can expect a fairly quiescent trajectory for international relations, with nuclear weapons stabilizing politics between global and regional powers at the highest level. However, there would also be cause for extreme vigilance with regard to the United States' forthcoming nuclear modernization. With a price tag that could exceed a trillion dollars over a multi-decade time frame, vested military interests behind it, a coalition of congressional supporters, and vocal ideological cheerleading in both parties, the anticipated modernization bears an eerie resemblance to the one that transformed world politics in the 1970s. Substantial restraints will need to be placed on it if we are to avoid a similar fate.

In contrast, if there were strategic rationales behind the late Cold War nuclear competition, then the future of international relations may be substantially more competitive. The intensifying diplomatic friction between China and the United States may give rise to nuclear competition. So, too, may the renewed confrontation between Moscow and Washington come to take on a nuclear dimension. In Asia, Pakistan and India may have to navigate a thicket of competitive incentives as new technology threatens arsenals of relatively modest size. At the same time, the strategic rationale behind nuclear modernization would be much stronger, and some improvements in nuclear technology could represent the best way to navigate a challenging international environment.

¹⁰ "Nuclear weapons significantly change the equation, rendering many of the concerns faced by powers in the lead-up to World War I moot." Ja Ian Chong and Todd H. Hall, "The Lessons of 1914 for East Asia Today: Missing the Trees for the Forest," *International Security* 39, no. 1 (2014): 15.

¹¹ "Nuclear weapons assure great power sovereignty – and certainly America's defense." Eugene Gholz, Daryl G. Press, and Harvey M. Sapolsky, "Come Home, America: The Strategy of Restraint in the Face of Temptation," *International Security* 21, no. 4 (Spring 1997): 6.

¹² "If the American-Soviet experience of the Cold War is a reliable guide, then surely nuclear deterrence is a powerful pacifier . . . Despite this argument, the United States should remain in Eurasia." Robert J. Art, *A Grand Strategy for America* (Ithaca, NY: Cornell University Press, 2003), 210.

¹³ Brooks, Wohlforth, and Ikenberry argue that "If wars of territorial conquest were the only security problem that mattered, then nuclear weapons would indeed have the wondrous qualities . . . and the optimistic conclusions . . . [that other strategies draw from them] would be valid." They prefer the name "Deep Engagement" to Primacy. Campbell Craig et al., "Debating American Engagement: The Future of U.S. Grand Strategy," *International Security* 38, no. 2 (2013): 194.

The gaping discrepancy between MAD's predictions of stability and the reality of competitive outcomes – in what is surely the most important historical case of nuclear rivalry – cries out for explanation, and thus for a concomitant reexamination of the nuclear revolution. This book aims to meet that challenge. This introduction has framed the puzzle and given some key definitions.

Next, in Chapter 1, I confront the nuclear revolution on its own terms: as a theory most concerned with positing what rational nuclear behavior looks like, and only secondarily interested in explaining the actual nuclear policies of states. I argue that MAD's austere and powerful logic actually ignores important implications of its assumptions, blurring the theory's predictions of military and political stability.

Even more importantly, as I explain in Chapter 2, MAD's concept of nuclear stalemate is empirically flawed as applied to the second half of the Cold War. The Cold War nuclear balance was *delicate*: stalemate was less entrenched, with more potential to be misunderstood, than MAD would allow. The implication of these arguments is that the nuclear revolution, properly understood, predicts at least some amount of nuclear competition between the Cold War superpowers.

In Chapter 3 I offer a new theory to explain the intensity and type of competition we ought to expect. In the abstract, a delicate nuclear balance could be consistent with either modest or severe competition, and arms control might serve to manage uncertainties about nuclear stalemate more cheaply than arms racing. I contend that policymakers' assessments of their state's *comparative constitutional fitness* – its internal constraints on arms racing and arms control, relative to the adversary – will shape their mix of cooperative and competitive policies, and the type of nuclear policies they are likely to pursue.

Chapter 4 offers a research design for investigating the competing hypotheses, turning MAD, its domestic political adjunct, and my own theory into testable predictions. It also provides capsule summaries of Chapters 5–8, which themselves evaluate these predictions against evidence from American nuclear force posture during the most pivotal years of the late Cold War nuclear competition: 1969–1979.

The upshot of this exercise is that the common wisdom surrounding the theory of the nuclear revolution is almost exactly backwards. MAD is generally held to be a logically powerful theory that perhaps suffers from occasional empirical difficulties. But in fact, the theory's logical structure contains imperfections that complicate its easy predictions of stable military policy and pacified diplomacy. The case for nuclear stalemate is usually regarded as incontestably obvious, especially in a Cold War setting with thousands of weapons on each side. But in fact, even during the Cold War, the political impact of nuclear stalemate depended on technological and perceptual uncertainties that made the nuclear balance more delicate, and its meaning more fluid, than MAD admits.

The major advocates of the nuclear revolution, then, essentially concede that their theory does not explain important parts of American nuclear force posture. For this task they have theories of domestic politics. And, though they sometimes invoke such theories in passing, the Cold War proponents of the nuclear revolution were not terribly interested in explaining American behavior. For them, the key question was whether that behavior was rational. The theory of the nuclear revolution purported to show that it was not.

I place a much greater priority on explaining the behavior of states than do the nuclear revolution's Cold War supporters. But in this chapter, I confront their theory on its own terms. Is it really the case that secure second-strike forces automatically produce military stability? And indeed, that this military stability is so complete and constraining that it stabilizes politics between nuclear states? Is the logic of the nuclear revolution so compelling that any aberrations from these predictions are most naturally explained as pathological departures from rationality? Or do the problems with the theory of the nuclear revolution run deeper than its empirical failure to explain American nuclear behavior?

I begin the analysis of these questions by summarizing the core concepts of the nuclear revolution and explaining its basic logic of military and political stability. I then illustrate how proponents of MAD have used hypotheses about parochial domestic politics to amend the pure theory in order to explain suboptimal nuclear behavior.

The heart of the chapter critiques the logic of both "Pure" and "Parochial" MAD. I next argue that Parochial MAD is a loose collection of post hoc hypotheses borrowed from other research programs in security studies and combined with a few examples. It has not been rigorously theorized or empirically investigated. Simple induction illustrates that domestic politics could easily work as a brake on competition rather than the throttle.

I assess Pure MAD's logic in the subsequent two sections. I contend that, far from being the epitome of airtight reasoning it is often held to be, Pure MAD's assumptions contain under-explored implications that make it difficult to reconcile with predictions of military and political stability. It is possible to return consistency to Pure MAD and save its predictions of military and political stability, but only at a cost: stringent empirical conditions must be placed on the content of its key assumption, nuclear stalemate.

THE THEORY OF THE NUCLEAR REVOLUTION: PURE MAD

Expounding the theory of the nuclear revolution is a difficult task, precisely because it did not emerge to explain state behavior, but rather to critique American policy. My solution is to draw out the core shared assumptions evident in the highest profile works from this literature, offering a "pure" version of the nuclear revolution prior to discussing how it accounted for

discrepant behavior. In this chapter, I frequently quote Jervis, Waltz, Glaser, Bernard Brodie, Stephen Van Evera, Thomas Schelling, McGeorge Bundy, and other famous exponents of MAD in order to demonstrate that I am not crafting a novel theory out of the idiosyncratic interpretations that can inevitably be found in a diverse literature.

The theory of the nuclear revolution starts from several realist and rationalist background assumptions about the normal sources of competition in international politics. Military competition is caused by the rational responses of states to the structure of the international system. Waltz begins his famous essay on nuclear proliferation by noting that “States coexist in a condition of anarchy,” where there is no authority to provide protection or resolve disputes, and the possibility of violence is omnipresent. He thus argues that “Self-help is the principle of action in an anarchic order, and the most important way in which states must help themselves is by providing for their own security.”⁵ Jervis explains that the security dilemma makes military competition the frequent consequence of anarchy and self-help: “many of the means by which a state tries to increase its security decrease the security of others,” which in turn inspires countervailing efforts.⁶

The process of military competition under anarchy provides a framework for rational bargaining between states. Waltz points out that competition’s “effect depends both on capabilities and the will to use them,” or as Jervis calls it, “the balance of military power” and the “balance of resolve.”⁷ If war occurs, its outcome will depend on which side is stronger and which side is more willing to incur costs and risks in order to triumph in regard to the issue in dispute. Prewar bargaining outcomes thus depend on estimates of relative military power and resolve, since stronger and more resolute states can more credibly threaten war. In the normal course of politics, states make broadly rational calculations about these quantities as they compete, though miscalculation and misrepresentation about military power and resolve is possible and can lead to war.⁸

The nuclear revolution offers three core concepts that collectively transform these competitive background conditions. The first concept is Thomas Schelling’s idea that, in the nuclear era, bargaining takes place through the

⁵ Scott Douglas Sagan and Kenneth N. Waltz, eds., *The Spread of Nuclear Weapons: A Debate Renewed* (New York: W. W. Norton & Co., 2002), 4–5.

⁶ Robert Jervis, “Cooperation Under the Security Dilemma,” *World Politics* 30, no. 2 (January 1978): 169.

⁷ Sagan and Waltz, *The Spread of Nuclear Weapons*, 7; Robert Jervis, “Why Nuclear Superiority Doesn’t Matter,” *Political Science Quarterly* 94, no. 4 (December 1, 1979): 628.

⁸ James D. Fearon, “Rationalist Explanations for War,” *International Organization* 49, no. 3 (July 1, 1995): 379–414. Importantly, rational assessments of the military balance attempt unbiased assessments of war outcomes, especially the damage that would occur to each society. Force ratios untethered to war outcomes should not affect bargaining. See Jervis, “Why Nuclear Superiority Doesn’t Matter,” 618; Glaser, *Analyzing Strategic Nuclear Policy*, 39.

mechanism of “competitions in risk-taking.” The intimidating character of general nuclear war, he pointed out, makes it difficult to bargain “coolly and deliberately” by threatening nuclear attack “in response to some enemy transgression.”⁹ The threat of nuclear attack is hard to believe. His solution to this problem of credibility was “the threat that leaves something to chance.”¹⁰ States could bargain by setting off a process where “the participants are not fully in control of events: they take steps that raise or lower the danger, but in a realm of risk and uncertainty.”¹¹ Jervis emphasizes that what matters in such a competition is “each side’s judgments of the chances that the conflict will expand, the willingness of each to bear costs and risks, and its perception of the other side’s willingness to do so.”¹²

According to the nuclear revolution’s theorists, states form their judgments and perceptions about mutual risk tolerance primarily through military signals that the war might expand unexpectedly. Examples could include fighting a conventional war, a signal whose “main consequence,” according to Schelling, “and potentially a main purpose for engaging in it, is to raise the risk of larger war.”¹³ Intra-war military actions, like putting bombers on airborne alert, might signal that nuclear use was imminent, or implicitly threatened if certain conditions continued. At the extreme, Glaser suggests that signaling could even include the limited use of nuclear weapons, even though this is “probably the action most likely to convince one or both countries that all-out war is virtually certain.”¹⁴ But the central point is that military signals “should not be evaluated primarily in terms of what they could do on the battlefield . . . Much more important is what they do to the expectation of general war.”¹⁵ The side that is less willing to tolerate rising levels of risk will be more likely to make concessions in order to end the crisis.

A second core concept of the nuclear revolution is that the balance of resolve strongly favors the defender of the status quo. “In most situations,” Jervis summarizes, “states are more willing to pay a high price to defend their positions than they are to expand.”¹⁶ Leaders should recognize that the state defending the status quo possesses multiple advantages. The status quo distribution of territory and other values is no accident. Its existence and endurance reflect an asymmetry of interests where both sides have what they

⁹ Thomas C. Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 1966), 97.

¹⁰ Thomas C. Schelling, *The Strategy of Conflict* (Cambridge, MA: Harvard University Press, 1960), chap. 8.

¹¹ Schelling, *Arms and Influence*, 97. ¹² Jervis, *The Illogic of American Nuclear Strategy*, 141.

¹³ Schelling, *Arms and Influence*, 107.

¹⁴ Charles Glaser, “Why Do Strategists Disagree about the Requirements of Deterrence?,” in *Nuclear Arguments: Understanding the Strategic Nuclear Arms and Arms Control Debates*, ed. Lynn Eden and Steven E. Miller (Ithaca, NY: Cornell University Press, 1989), 152.

¹⁵ Schelling, *Arms and Influence*, 111.

¹⁶ Jervis, *The Illogic of American Nuclear Strategy*, 153.

want most: “historical, political, and psychological factors conspire to give the defender a strong interest in perpetuating the situation.”¹⁷ Furthermore, the psychological features can be especially weighty, even when unrelated to vital interests – prospect theory suggests that humans tend to value avoiding loss much more strongly than they value similar gains.¹⁸

Additionally, the structure of the bargaining situation favors the defender, since the status quo is the obvious focal point and tacit solution for political negotiations. The defender will be able to point to credibility concerns as evidence for why it cannot yield: “demands to change the status quo cannot help but raise the question of further demands . . . The defender can plausibly argue that changes would be intolerable; its adversary has in fact tolerated the previous distribution of values.”¹⁹ Similarly, “the expansionist must start the process of changing the status quo.” Because the aggressor is “required to take the first, and very dangerous step,” it will only do so if it can “be sure the defender would not escalate and the situation would remain under control. It is hard to see how these conditions could be met.”²⁰ In sum, states defending the status quo should have a decisive bargaining advantage in a risk-taking competition with expansionist rivals.

The nuclear revolution’s third and most fundamental concept is nuclear stalemate: the idea that at high force levels, no side can gain advantages in the military balance. At some point, nuclear arsenals become so large and difficult to destroy that neither side can attempt a preemptive strike on their adversary without incurring unacceptable retaliation. “In the past,” Jervis writes, “the side that won a major war could, if it chose, kill the losers.” Once secure second-strike forces assure massive retaliation, he argues, “the losers can equally kill the winners.”²¹ States exist in the condition of MAD.

Once nuclear stalemate is in place, no state can be stronger or weaker than another: additional military forces cannot improve war outcomes, and thus cannot improve bargaining leverage. “Even large shifts in force levels have little effect on relative power,” Stephen Van Evera argues, and “Once the opponent’s major cities are targeted by secure nuclear forces, more forces are a useless excess” since a change in “the ratio of this excess has little meaning.”²² As Waltz puts it, stalemate “negate[s] both nuclear and conventional advantage.” Once MAD is achieved, “not only is a small second-strike force equivalent to a large second-strike force, but small conventional forces are equivalent to large conventional forces because large forces” still generate an overwhelming risk of annihilating escalation.²³

¹⁷ Jervis, *The Meaning of the Nuclear Revolution*, 30. ¹⁸ Ibid., 31. ¹⁹ Ibid.

²⁰ Jervis, *The Illogic of American Nuclear Strategy*, 154. ²¹ Ibid., 26.

²² Stephen Van Evera, *Causes of War: Power and the Roots of Conflict* (Ithaca, NY: Cornell University Press, 2001), 244.

²³ Sagan and Waltz, *The Spread of Nuclear Weapons*, 33, 32.

The absolutely critical argument here is that, past a certain threshold of destruction, no participant in a war can hope for an appreciably “better” outcome than its adversary. The expected outcome of an all-out nuclear exchange is effectively state death for both sides. Advocates of the nuclear revolution disagree about the amount of expected damage required to produce stalemate.²⁴ But they agree that after the threshold has been reached, further damage is meaningless. Although more people may die and more real estate may be incinerated, no political values remain to be destroyed.

Together with its background conditions, the nuclear revolution’s three assumptions cause military stability: they make it impossible for additional forces to improve a state’s security, no matter what the adversary does. Once in MAD, Waltz argues, “strategic arms races are . . . pointless” and military “balances are inherently stable.” While “Human error and folly may lead some parties . . . to spend more on armaments than is needed” there is no corresponding need for others “to increase their armaments in response, because such excess spending does not threaten them.”²⁵ Jervis agrees: in MAD, “Neither side need acquire more than a second-strike capability and, if either does, the other need not respond since its security is not threatened.”²⁶ In Glaser’s stark formulation, “nuclear weapons essentially eliminate the security dilemma.” Even “an intense superpower arms race creates very little insecurity” and the fear of nuclear retaliation “is likely to reduce the intensity of [any such] arms race, thereby further reducing the insecurity.”²⁷ Competitive force postures cannot provide political benefits, and so stable force postures will prevail. As McGeorge Bundy puts it, “no one in any society wants to pay tens of billions for nothing.”²⁸

The nuclear revolution also causes political stability. Crises will be very rare, since a challenge to the status quo is close to irrational. As Jervis puts it, once “both sides have second strike capability, crises should not be frequent . . . the knowledge that war would be suicide coupled with the bargaining advantage possessed by the side defending the status quo means that would be expansionists should be loath to instigate confrontations.”²⁹ The challenger’s risk-taking disadvantage provides restraints well beyond the avoidance of nuclear war. As Bernard Brodie writes, secure nuclear forces “act critically to deter wars between major powers, and not just nuclear wars alone but any

²⁴ When referring to nuclear stalemate in this study, I adopt a conservative standard: the certainty of retaliatory damage sufficient to destroy the target as an organized political entity. As an approximation, I would accept Robert McNamara’s criteria for “assured destruction”: the loss of 20–25 percent of a state’s population and 50–75 percent of its industry.

²⁵ Sagan and Waltz, *The Spread of Nuclear Weapons*, 30–31.

²⁶ Jervis, “Why Nuclear Superiority Doesn’t Matter,” 618.

²⁷ Glaser, *Analyzing Strategic Nuclear Policy*, 95, 97, 97 n. 110.

²⁸ McGeorge Bundy, “To Cap the Volcano,” *Foreign Affairs* 48, no. 1 (October 1969): 13.

²⁹ Jervis, *The Meaning of the Nuclear Revolution*, 35.

by parochial interests from below, as presidents are forced to grapple with the exigencies of coalition management.

The most frequently invoked instances of excessively competitive force posture come from acquisition policy. Fen Hampson argues that coalitional politics in Congress forced a reluctant Carter administration to acquire the MX ICBM. "Jimmy Carter had never liked the missile," Hampson concludes, "but he found himself under strong attack on defense because of his handling of the B-1 bomber (which he had canceled) and the neutron bomb (where he reversed himself on an earlier decision to cancel the program). He was under mounting pressure from Congress to increase defense spending and to continue with ICBM modernization."⁴⁵

Rhodes blames military interests and presidential politics for the rapid increase of the US ICBM force in the 1960s. "SAC [strategic air command] had wanted ten thousand Minutemen," he notes, while

The Air Force leadership cut that request to three thousand. [President John F.] Kennedy and [Secretary of Defense Robert] McNamara had come to favor a force of only six hundred, because the US inventory already counted 656 Polaris missiles on forty-one nuclear submarines. But since Kennedy had made a supposed 'missile gap' a major issue of his presidential campaign, a thousand Minutemen to fill the illusory gap was the least he thought he could order to save face.⁴⁶

Furthermore, parochial interests have been linked to overly competitive arms control positions. Glaser contends that the US military interests in counterforce "were reflected in opposition to a ban on MIRVs [Multiple Independent Reentry Vehicles]" in SALT I and were "influential in making sure the [SALT II] treaty protected MX by allowing each side to deploy one new type of ICBM." He implies that civilian decision-makers were not always pleased with these positions, but acquiesced because of their importance for coalition management: "military opposition to an agreement is probably sufficient to prevent the broad domestic support required for ratification of arms control agreements."⁴⁷

Craig and Logevall also connect coalitional dynamics to arms control issues, and to the adoption of competitive nuclear employment policies like PD-59. They write that the famously anti-nuclear Carter "surely had not come around to the idea that a limited nuclear war was somehow 'winnable'; rather, developing the kind of aggressive strategy articulated by PD-59 was a ready means of demonstrating his toughness to the electorate and to influential voices inside the Beltway." Arms control met the same fate: "The president also gave up on securing congressional ratification of SALT II, recognizing that whatever its contribution to world peace and stability, an arms control deal with the

⁴⁵ Fen Osler Hampson, *Unguided Missiles: How America Buys Its Weapons* (New York: W. W. Norton & Company, 1990), 127.

⁴⁶ Rhodes, *Arsenals of Folly*, 95. ⁴⁷ Glaser, *Analyzing Strategic Nuclear Policy*, 354, 355.

Soviet Union would probably cost him, rather than help him, in the election that fall.”⁴⁸

Finally, the literature argues that these coalitional dynamics give statesmen incentives to adopt arms control aimed at traditional goals of arms race and crisis stability. Domestic political actors, either motivated by parochial interest or simply confused about nuclear stalemate and its implications, may require arms control to reassure them about adversary intentions or to defuse their self-interested arguments.

As former Secretary of State Dean Rusk once put it, verifiable arms control “is the critical means by which surging political forces such as suspicion, fear, hate, and demagoguery can be kept under control.”⁴⁹ “Presidents and Politburos may know in their hearts that the only thing they want from strategic weapons is never to have to use them,” Bundy argues, but due to parochial interests, “in their public postures they have felt it necessary to claim more.” Though he believed the logic of stalemate implied forgoing additional nuclear investments, “logic alone will not permanently sustain a national policy of unilateral limitation. It will take two to cap the volcano of strategic competition.”⁵⁰ Glaser similarly contends that “we should not underestimate the difficulty of achieving unilateral restraint” since “strong military organizational interests” favor competition. “Arms control,” he believes, “might increase the prospects for U.S. restraint.”⁵¹

A CRITIQUE OF PAROCHIAL MAD: POST HOC HYPOTHESES

Despite the contentions of this large literature, it is easy to imagine how domestic political factors might work in the opposite direction, acting as a brake on competitive nuclear policies. Consider the modernization of America’s Polaris Submarine Launched Ballistic Missiles (SLBMs) during the 1960s, which resulted in the Poseidon SLBM becoming the standard sea-based missile for the critical decade of this study.

The Office of the Secretary of Defense initially favored a counterforce Poseidon capable of hitting hard targets, demanding that the Navy Special Projects Office (SPO), in charge of developing the missile, embrace stellar-inertial guidance and allow some of the missiles to carry two multi-megaton Mk 17 RVs.⁵² This would have been a highly competitive policy, as it would have provided Poseidon with the accuracy and yield it needed to destroy very hard missile silos. But SPO resisted making Poseidon part of a competitive

⁴⁸ Craig and Logevall, *America’s Cold War*, 310.

⁴⁹ Lynn Eden and Steven E. Miller, eds., *Nuclear Arguments: Understanding the Strategic Nuclear Arms and Arms Control Debates* (Ithaca, NY: Cornell University Press, 1989), 264.

⁵⁰ McGeorge Bundy, “To Cap the Volcano,” *Foreign Affairs* 48, no. 1 (October 1969): 13, 17.

⁵¹ Glaser, *Analyzing Strategic Nuclear Policy*, 255.

⁵² Graham Spinardi, *From Polaris to Trident: The Development of US Fleet Ballistic Missile Technology* (Cambridge: Cambridge University Press, 1994), 92.

counterforce posture, opposing stellar-inertial guidance and the Mk 17.⁵³ At the same time, by the late 1960s there was an increasingly vocal hostility toward counterforce weapons in some parts of Congress.⁵⁴

These parochial interests, with preferences opposite those expected by Parochial MAD, soon combined forces to halt Poseidon's counterforce capability. SPO had a study commissioned to illustrate that the small yield Mk 3 could "potentially at least, threaten damage to moderately hard targets." This supposedly made the Mk 17 superfluous, allowing SPO to trade its acceptance of stellar-inertial guidance for canceling the high yield warhead; as one person involved argued, "the reason that study was done was to kill the Mk 17." But SPO then deprioritized work on stellar-inertial guidance. As one admiral on the project explained "most of us were skeptical about the need to dig out hard targets as an essential element of deterrence. We went along with it to the degree necessary to keep the program." Congressional counterforce opponents then delivered the *coup de grâce*. In late 1969 they forced the Nixon administration to publicly swear that "there is no current US program to develop a so-called 'hard-target MIRV capability,'" forcing the cancellation of stellar-inertial guidance.⁵⁵ Thanks to the influence of parochial interests in Congress and the Navy, SLBM modernization produced a stable, retaliatory policy.

All in all, Parochial MAD's hypotheses and examples have something of a post hoc flavor. Parochial MAD's defenders address the issue of explaining American policy only in passing, and I am not aware of any study that attempts to demonstrate Parochial MAD's empirical power at any length.⁵⁶ Their attitude seems to assume that since Pure MAD is correct, and competitive nuclear polices are crazy, these policies must be caused by some irrational force. It is enough simply to grab the first available hypotheses and examples that come to mind, because it is only necessary to make a plausible case.

I disagree. Domestic political forces can exert profound influence on nuclear force posture. But we will make more progress in understanding how these forces work if we take a deductive and theoretical approach. It makes more sense to first figure out what any given political system ought to lead us to expect in terms of force posture outcomes, and then to systematically compare these

⁵³ Ibid., 93.

⁵⁴ Donald Mackenzie, *Inventing Accuracy: A Historical Sociology of Nuclear Missile Guidance* (Cambridge, MA: The MIT Press, 1993), 223–224.

⁵⁵ Interviews with SPO insiders and Nixon letter quoted, *ibid.*, 265, 264, 269.

⁵⁶ There are studies of individual weapons systems that could be taken to provide some support for Parochial MAD, but only in the context of a more eclectic set of explanations. These include Ted Greenwood, *Making the MIRV: A Study of Defense Decision Making* (Cambridge, MA: Ballinger Publishing Company, 1975); Spinardi, *From Polaris to Trident*; Mackenzie, *Inventing Accuracy*; Graham Spinardi, "The Rise and Fall of Safeguard: Anti-Ballistic Missile Technology and the Nixon Administration," *History & Technology* 26, no. 4 (December 2010): 313–334.

expectations to the evidence. I attempt these tasks in Chapter 3 with the concept of *comparative constitutional fitness*.

A CRITIQUE OF PURE MAD: THE AMBIGUITY OF THE STATUS QUO

Importantly, there is reason to doubt Pure MAD: its assumptions have under-explored implications that interfere with its predictions of military and political stability. Consider the resolve advantage said to accrue to the defender of the status quo. If the status quo is ambiguous, it can powerfully recreate the competitive incentives of the security dilemma, contrary to the theory's logic.

Pure MAD assumes that the status quo serves as a powerful heuristic, allowing states to determine that its defender holds a decisive advantage in the balance of resolve. The historical, psychological, political, and bargaining reasons given in support of this heuristic are indeed impressive, but they all assume that the status quo is easy to identify. Yet this need not be the case.

Consider the period of the "Great Crises" in the Cold War between 1958 and 1962, in Berlin and Cuba.⁵⁷ If Moscow had declared that West Berlin was now part of East Germany, and closed down the access routes to Berlin – as it had done without overt military challenge in the crisis of 1948 – would that have made it the challenger and put it at a clear disadvantage? Or rather, would the challenge have come from any attempt by NATO to cross the East German border in force, making it the obvious loser in the ensuing manipulation of risk? More broadly, wouldn't West German acquisition of nuclear weapons – the issue at the heart of the crisis – have constituted a revolutionary change in the European political order, one that Moscow would have felt legitimately entitled to try to forestall? At the same time, weren't threats to Berlin, a city with major historical, psychological, and political significance to West Germany and to the Western anti-communist coalition, clearly an alteration of an existing settlement?

The situation is not made any clearer by leaving aside the somewhat bizarre situation of Berlin and examining the Cuba crisis. Why was Khrushchev's decision to put nuclear-tipped missiles on the territory of its Cuban ally, as Washington had done with NATO, an obvious assault on the existing order? If it was, it was because the Americans saw the status quo as a Western hemisphere free of Soviet military power. After the missiles were deployed, the Soviets claimed they were defending a status quo characterized by Cuba's ability to exercise its sovereign rights against an illegal blockade, and potentially, an

⁵⁷ A large literature exists on both these events, which I do not attempt to do justice to here. My simplified exposition is for the sake of example, and follows Marc Trachtenberg, *A Constructed Peace: The Making of the European Settlement, 1945–1963* (Princeton, NJ: Princeton University Press, 1999), chaps. 7–9. I am also grateful to Trachtenberg for encouragement and suggestions in developing the critiques of Pure MAD that follow.

invasion. But American leaders saw Moscow as persisting in a major new threat to the United States, one linked to their intimations that the Berlin crisis would be brought to a head after the 1962 congressional elections.

The point is that there can often be genuine uncertainty about the character of the status quo, and therefore over who possesses bargaining advantages. The status quo can be multivalent, which allows contending states to defend different parts of it. The status quo can be dynamic, which implies that stopping existing trends in some important feature of the situation can be legitimately perceived as a defensive move. It can be fluid, with “gray areas” whose political orientation has never been firmly established. Or the status quo can be altered by third parties, making it totally unclear which intervening power is the defender.

In these cases, rivals in a confrontation can both believe they are resisting encroachment on important values; each may be governed by psychological loss aversion; either can think it is favored by the structure of the bargaining situation; all participants can plausibly invoke reputational concerns; and any actor might take the first dangerous step without perceiving itself to do so. The result will be a world where crises, and thus the potential for war, retain their salience in spite of a stalemated military balance.

Politically salient status quo ambiguities vary over space and time, and ought, in their own right, to constitute a major source of competition. But the crucial point from Pure MAD’s perspective is that they are not uncommon; they are part of the basic warp and woof of international political life: the politics of the 1914 July crisis and Central Europe in the 1930s were in large part driven by differing estimates of the status quo’s nature, and thus the balance of resolve.

Significantly, the problem of status quo ambiguity is not simply an empirical objection to Pure MAD’s predictions. Status quo ambiguity is a fundamental conceptual and logical problem for Pure MAD. After all, one of Jervis’s great theoretical contributions was to point out that the security dilemma blurs the distinctions between offensive and defensive actions, and to suggest that superior and easily identifiable defensive military technology could bring crystal clarity.⁵⁸ As elaborated earlier, this is exactly Pure MAD’s argument about nuclear stalemate – secure second-strike forces eliminate the security dilemma, and thus any need for military competition, by clearly and obviously making successful attacks impossible. Yet if the nature of the status quo itself can blur the distinction between challenger and defender, then elements of the security dilemma will persist.

And if ambiguous situations are part of the normal course of world politics, then a certain amount of political instability is built into the system, contra Pure MAD. If some risk of a major confrontation is unavoidable, states in a self-help system will be strongly incentivized to seek out crisis bargaining leverage, if only to improve their odds of surviving a nuclear crisis. With the balance of resolve

⁵⁸ Jervis, “Cooperation Under the Security Dilemma,” especially 187–214.

